ZOLL®

Advancing Resuscitation. Today.®

R series® CONFIGURATION MANUAL

real CPR help®

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Chapter 1 Introduction

The R Series® is designed with several user selectable features that allow operators to configure the device according to their protocols and local requirements. This manual describes the configuration settings (options and defaults) and how to change them for ALS, Plus, and BLS models. References to AED settings is for Plus and BLS models only.

Note: Your unit may not contain all features listed. For BLS/Plus units, some features are available in manual mode operation only.

For more information, see the following sections:

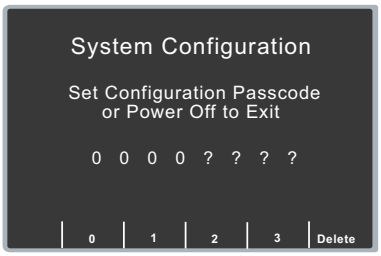
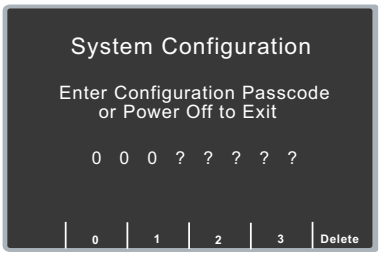
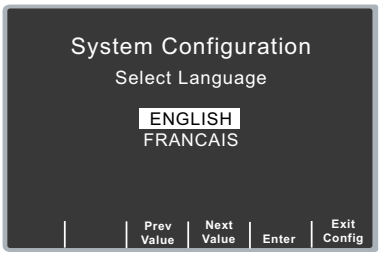
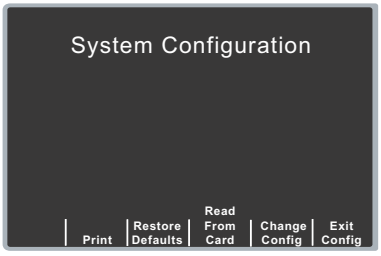
- "Entering System Configuration Mode" on page 2
- "Printing Configuration Settings" on page 3
- "Uploading Data from a Compact Flash Card" on page 5
- "Saving Configuration to a Compact Flash Card" on page 7
- "Restoring Default Values" on page 8
- "Accessing and Changing Configuration Settings" on page 9
- "Leaving Configuration Mode" on page 10

Entering System Configuration Mode

In order to make any changes to unit configuration, you must first power on the unit in System Configuration mode.

Procedure

Follow these steps to power on the unit in System Configuration mode:

Step	Action	
1.	Turn the selector switch to OFF, and wait 10 seconds. Simultaneously press and hold the right-most and left-most softkeys (below the monitor) while turning the selector switch to MONITOR (for ALS models) or ON (for Plus and BLS models), and hold the softkeys for approximately 4 seconds. The unit powers on in System Configuration mode.	
2.	Enter the passcode using the appropriate softkeys. **Note:** When you enter System Configuration for the first time, enter the default pass code of **00000000**. To change a digit, use the **Delete** softkey to highlight the entry and re-enter the digit. When all 8 digits have been entered, the unit automatically advances to the Select Language screen.	
3.	Use the **Prev Value** and **Next Value** softkeys to toggle the highlighted area between the language options.	
4.	Press the **Enter** softkey to select the highlighted language. All subsequent configuration menus will be in the selected language. The unit automatically advances to the Main Configuration menu.	

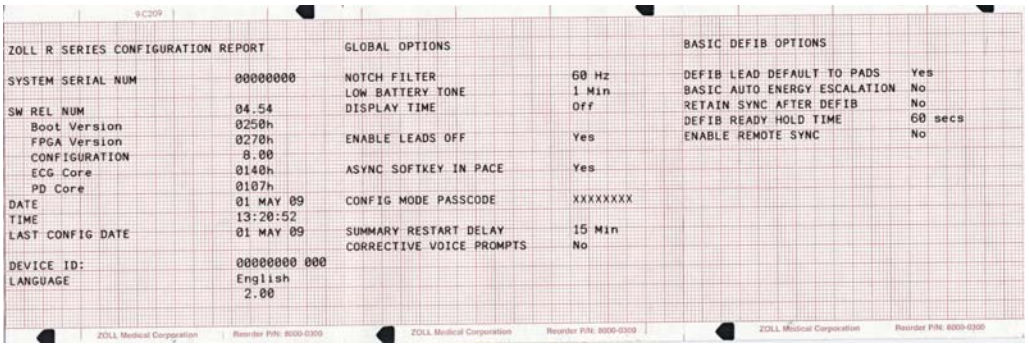
Printing Configuration Settings

The default settings shown below are for North American units only. To print the current configuration of your unit while the unit is in the System Configuration mode, press the **Print** softkey from the Main System Configuration menu. For instructions on putting the unit in System Configuration mode, refer to the previous section, “Entering System Configuration Mode.”

Procedure

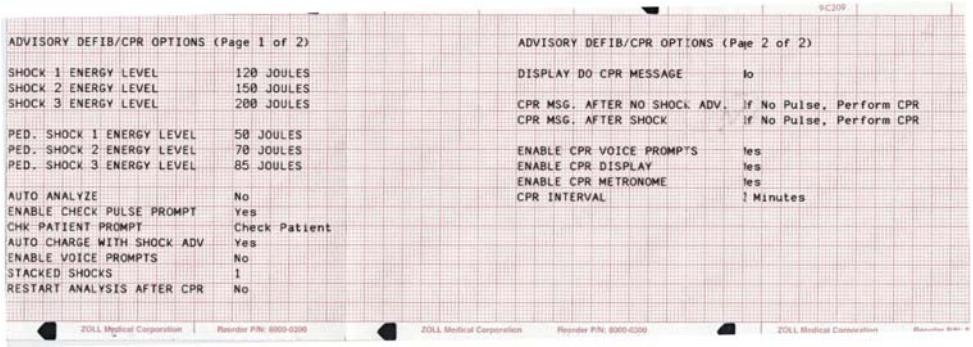
In System Configuration mode, press the **Print** softkey to print a stripchart of all the unit’s configuration settings. See a copy of a sample Configuration Report below.

Note: In normal operation, you can print the configuration by pressing the following softkeys: **Options**, **More**, then **Print Config**.



ZOLL R SERIES CONFIGURATION REPORT

SYSTEM SERIAL NUM	00000000	NOTCH FILTER	60 Hz	DEFIB LEAD DEFAULT TO PADS	Yes
		LOW BATTERY TONE	1 Min	BASIC AUTO ENERGY ESCALATION	No
SW REL NUM	04.54	DISPLAY TIME	Off	RETAIN SYNC AFTER DEFIB	No
Boot Version	0250h			DEFIB READY HOLD TIME	60 secs
FPGA Version	0270h	ENABLE LEADS OFF	Yes	ENABLE REMOTE SYNC	No
CONFIGURATION	8.00				
ECG Core	0140h	ASYNC SOFTKEY IN PACE	Yes		
PD Core	0107h				
DATE	01 MAY 09	CONFIG MODE PASSCODE	XXXXXXXX		
TIME	13:20:52				
LAST CONFIG DATE	01 MAY 09	SUMMARY RESTART DELAY	15 Min		
		CORRECTIVE VOICE PROMPTS	No		
DEVICE ID:	00000000 000				
LANGUAGE	English				
	2.00				

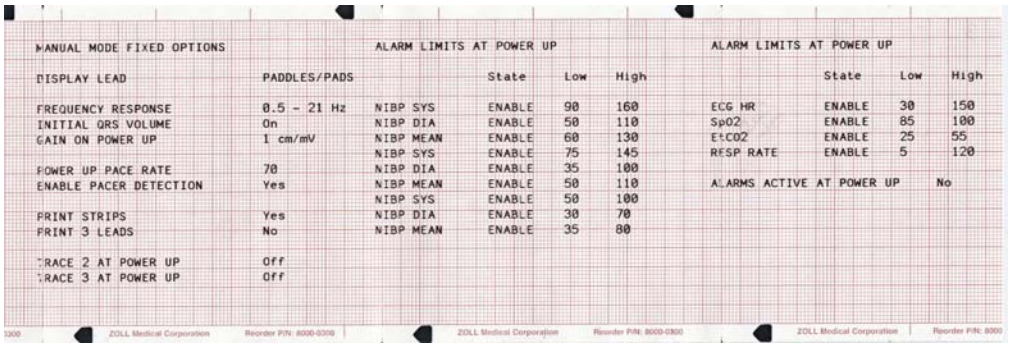


ADVISORY DEFIB/CPR OPTIONS (Page 1 of 2)

SHOCK 1 ENERGY LEVEL	120 JOULES
SHOCK 2 ENERGY LEVEL	150 JOULES
SHOCK 3 ENERGY LEVEL	200 JOULES
PED. SHOCK 1 ENERGY LEVEL	50 JOULES
PED. SHOCK 2 ENERGY LEVEL	70 JOULES
PED. SHOCK 3 ENERGY LEVEL	85 JOULES
AUTO ANALYZE	No
ENABLE CHECK PULSE PROMPT	Yes
CHK PATIENT PROMPT	Check Patient
AUTO CHARGE WITH SHOCK ADV	Yes
ENABLE VOICE PROMPTS	No
STACKED SHOCKS	1
RESTART ANALYSIS AFTER CPR	No

ADVISORY DEFIB/CPR OPTIONS (Page 2 of 2)

DISPLAY DO CPR MESSAGE	No
CPR MSG. AFTER NO SHOCK ADV.	If No Pulse, Perform CPR
CPR MSG. AFTER SHOCK	If No Pulse, Perform CPR
ENABLE CPR VOICE PROMPTS	Yes
ENABLE CPR DISPLAY	Yes
ENABLE CPR METRONOME	Yes
CPR INTERVAL	1 Minutes



MANUAL MODE FIXED OPTIONS

DISPLAY LEAD	PADDLES/PADS
FREQUENCY RESPONSE	0.5 - 21 Hz
INITIAL QRS VOLUME	On
GAIN ON POWER UP	1 cm/mV
POWER UP PACE RATE	70
ENABLE PACER DETECTION	Yes
PRINT STRIPS	Yes
PRINT 3 LEADS	No
TRACE 2 AT POWER UP	Off
TRACE 3 AT POWER UP	Off

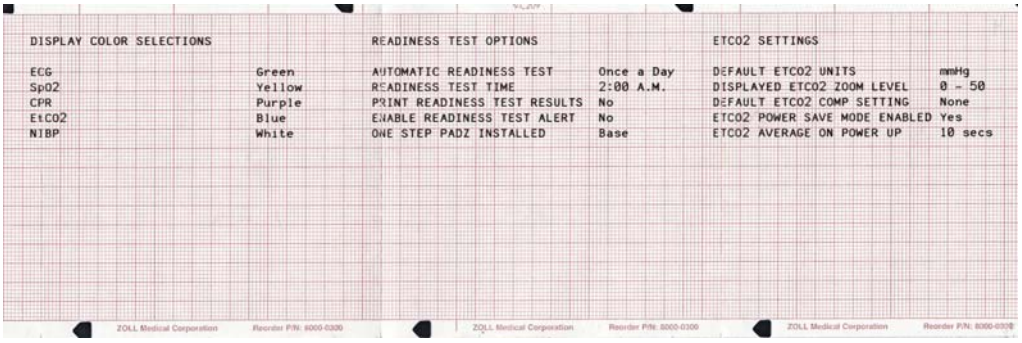
ALARM LIMITS AT POWER UP

	State	Low	High
NIBP SYS	ENABLE	90	160
NIBP DIA	ENABLE	50	110
NIBP MEAN	ENABLE	60	130
NIBP SYS	ENABLE	75	145
NIBP DIA	ENABLE	35	100
NIBP MEAN	ENABLE	50	110
NIBP SYS	ENABLE	50	100
NIBP DIA	ENABLE	30	70
NIBP MEAN	ENABLE	35	80

ALARM LIMITS AT POWER UP

	State	Low	High
ECG HR	ENABLE	30	150
SpO2	ENABLE	85	100
EtCO2	ENABLE	25	55
RESP RATE	ENABLE	5	120

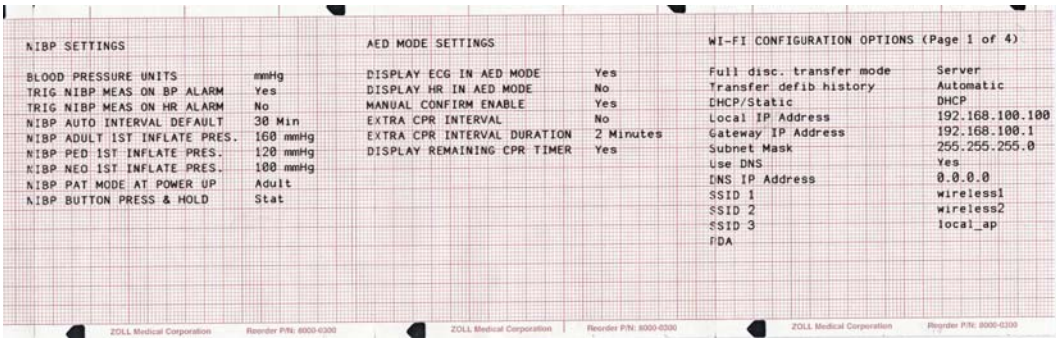
ALARMS ACTIVE AT POWER UP No



DISPLAY COLOR SELECTIONS	
ECG	Green
SpO2	Yellow
CPR	Purple
EtCO2	Blue
NIBP	White

READINESS TEST OPTIONS	
AUTOMATIC READINESS TEST	Once a Day
READINESS TEST TIME	2:00 A.M.
PRINT READINESS TEST RESULTS	No
ENABLE READINESS TEST ALERT	No
ONE STEP PADZ INSTALLED	Base

ETCO2 SETTINGS	
DEFAULT ETCO2 UNITS	mmHg
DISPLAYED ETCO2 ZOOM LEVEL	0 - 50
DEFAULT ETCO2 COMP SETTING	None
ETCO2 POWER SAVE MODE ENABLED	Yes
ETCO2 AVERAGE ON POWER UP	10 secs

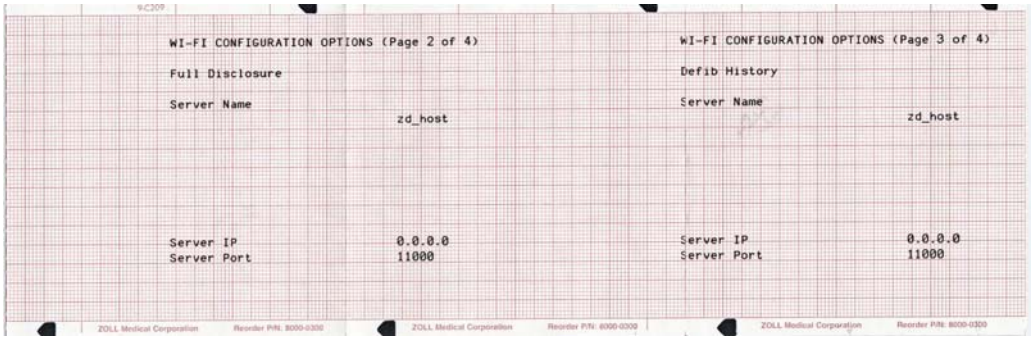


NIBP SETTINGS	
BLOOD PRESSURE UNITS	mmHg
TRIG NIBP MEAS ON BP ALARM	Yes
TRIG NIBP MEAS ON HR ALARM	No
NIBP AUTO INTERVAL DEFAULT	30 Min
NIBP ADULT 1ST INFLATE PRES.	160 mmHg
NIBP PED 1ST INFLATE PRES.	120 mmHg
NIBP NEO 1ST INFLATE PRES.	100 mmHg
NIBP PAT MODE AT POWER UP	Adult
NIBP BUTTON PRESS & HOLD	Stat

AED MODE SETTINGS	
DISPLAY ECG IN AED MODE	Yes
DISPLAY HR IN AED MODE	No
MANUAL CONFIRM ENABLE	Yes
EXTRA CPR INTERVAL	No
EXTRA CPR INTERVAL DURATION	2 Minutes
DISPLAY REMAINING CPR TIMER	Yes

WI-FI CONFIGURATION OPTIONS (Page 1 of 4)

Full disc. transfer mode	Server
Transfer defib history	Automatic
DHCP/Static	DHCP
Local IP Address	192.168.100.100
Gateway IP Address	192.168.100.1
Subnet Mask	255.255.255.0
Use DNS	Yes
DNS IP Address	0.0.0.0
SSID 1	wireless1
SSID 2	wireless2
SSID 3	local_ap
PDA	



WI-FI CONFIGURATION OPTIONS (Page 2 of 4)

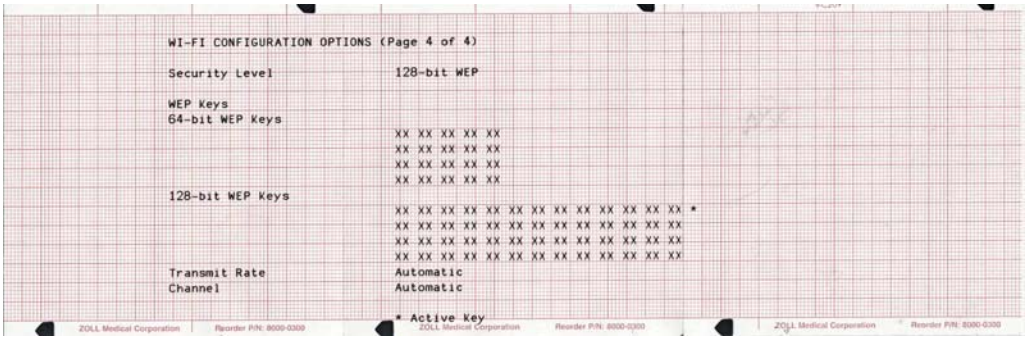
Full Disclosure

Server Name	zd_host
Server IP	0.0.0.0
Server Port	11000

WI-FI CONFIGURATION OPTIONS (Page 3 of 4)

Defib History

Server Name	zd_host
Server IP	0.0.0.0
Server Port	11000



WI-FI CONFIGURATION OPTIONS (Page 4 of 4)

Security Level	128-bit WEP
WEP Keys	
64-bit WEP Keys	
	XX XX XX XX XX
	XX XX XX XX XX
	XX XX XX XX XX
	XX XX XX XX XX
128-bit WEP Keys	
	XX XX XX XX XX XX XX XX XX XX XX XX XX *
	XX XX XX XX XX XX XX XX XX XX XX XX XX
	XX XX XX XX XX XX XX XX XX XX XX XX XX
	XX XX XX XX XX XX XX XX XX XX XX XX XX
Transmit Rate	Automatic
Channel	Automatic

* Active Key

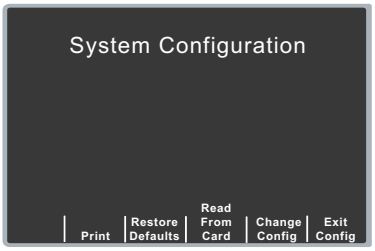
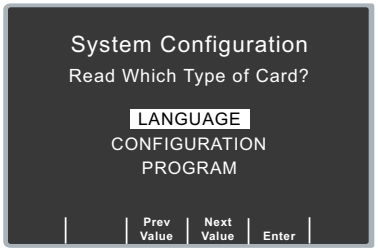
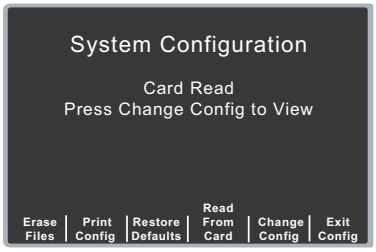
Uploading Data from a Compact Flash Card

You can upload data from a compact flash card to perform the following tasks:

- Copy the configuration of one unit to any number of units
- Install new software to the unit
- Copy a second language to the unit

Procedure

Follow these steps to load a configuration, another language, or software from a compact flash card:

Step	Action	
1.	Install the compact flash card in the R Series unit, and power on the unit in System Configuration mode as described in “Entering System Configuration Mode” on page 2.	
2.	Press the **Read From Card** softkey to display the Read Card screen. Use the **Prev Value** and **Next Value** softkeys to toggle the highlighted area between the following options: • LANGUAGE - allows you to upload a second language to the unit. English is always on the unit as default, and one other language can be added. • CONFIGURATION -allows you to read the configuration data from a card, thereby configuring this unit. • PROGRAM - allows you to install new software in either the PD processor or the ECG processor. **Note:** Do not install an older version of software over a newer version because it will cause software problems.	
3.	Press the **Enter** softkey to initiate reading and storing the information from the installed compact flash card. Once the card has been read and loaded, the unit displays the *CARD READ* message (for a language card) or the *CARD READ* and *PRESS CHANGE CONFIG TO VIEW* messages (for a configuration card).	

If you want to review configuration settings, press the **Change Config** softkey. See “Accessing and Changing Configuration Settings” on page 9 for more information. If you want to leave

System Configuration mode, press the **Exit Config** softkey. See “Leaving Configuration Mode” on page 10 for more information.

If the unit encounters an error reading the memory card, one of the following error messages is displayed:

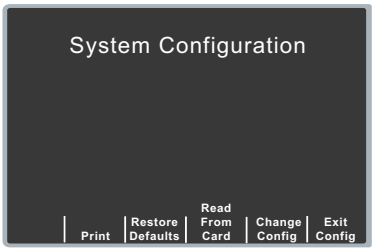
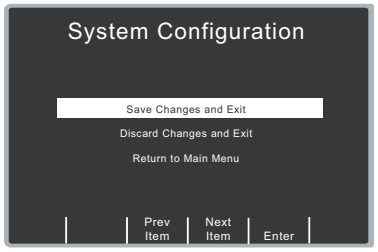
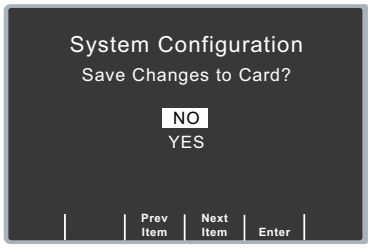
Error Message	Description
CARD READ FAILED	No response is detected from the card reader.
BAD CARD	The unit cannot read from card.
NO CARD INSERTED	The card is not installed in data card slot.

Saving Configuration to a Compact Flash Card

Whenever you exit configuration mode, you can optionally save the configuration to a compact flash card. This allows you to copy the configuration from one unit to any number of units.

Procedure

Follow these steps to save configuration data to a compact flash card:

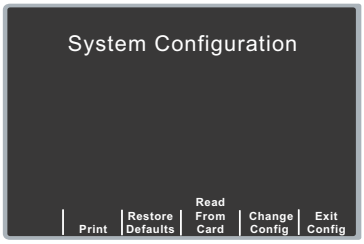
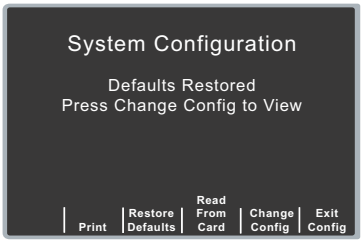
Step	Action	
1.	Power on the unit in System Configuration mode as described in “Entering System Configuration Mode” on page 2.	
2.	Press the **Exit Config** softkey to display the Exit Configuration screen, and then install the flash card in the R Series unit.	
3.	Press the **Enter** softkey to save the configuration changes and exit. The unit displays the SAVING CONFIGURATION and DO NOT POWER OFF messages and then the Save Changes To Card screen appears.	
4.	Press the **Next Item** softkey to highlight YES, then press the **Enter** softkey. The unit displays the SAVING TO CARD message and then the POWER OFF TO EXIT CONFIGURATION message.	

Restoring Default Values

You can restore all configuration settings to their factory default settings. Only the display language, if different from the default, does not change.

Procedure

Follow these steps to restore all configuration settings to default values:

Step	Action	
1.	Power on the unit in System Configuration mode as described in “Entering System Configuration Mode” on page 2.	
2.	Press the **Restore Defaults** softkey to reconfigure settings to their default settings. Once default settings are restored, the unit displays the *DEFAULTS RESTORED* and *PRESS CHANGE CONFIG TO VIEW* messages.	

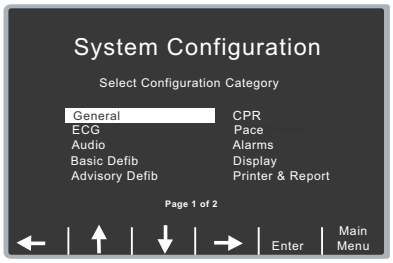
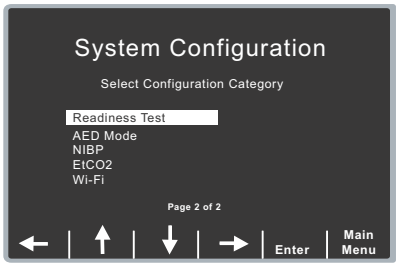
If you want to review configuration settings, press the **Change Config** softkey. See “Accessing and Changing Configuration Settings” on page 9 for more information. If you want to leave System Configuration mode, press the **Exit Config** softkey. See “Leaving Configuration Mode” on page 10 for more information.

Accessing and Changing Configuration Settings

You can change the current value for any configuration setting. You access most of the settings in the same way as described below. Additional steps are required to access and modify several settings. For those settings, the additional steps are provided with the setting description in the next chapter.

Procedure

Follow these steps to access the settings.

Step	Action
1.	Press the **Change Config** softkey from the Main System Configuration screen. The unit advances to the Select Configuration Category screen.  
2.	Use the softkeys on the screen to move through the list and select a category, or to exit as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the list of categories. • **Enter** — provides you access to the options of the highlighted category. Press this softkey once you have highlighted the appropriate category. • **Main Menu** — returns you to the Main System Configuration screen.
3.	Once you select and access the options for a category, you can highlight the specific setting you want to change, then press the **Change Value** softkey until the appropriate value is displayed. **Note:** Some options require and evoke an additional screen to set the value (for example, setting the Device Identifier). Specific instructions for those options are provided in the next chapter.

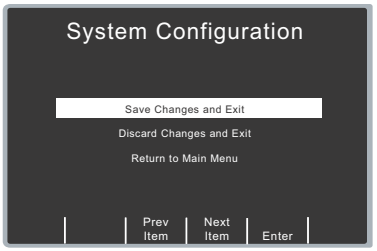
Step	Action
4.	When you are finished, you can either press the **Category List** softkey to return to the Category screen, or press the **Prev Item** or **Next Item** softkey to move to another option whose settings you want to modify.

Leaving Configuration Mode

Procedure

Follow the step below to leave the configuration mode:

Step	Action
1.	Press the **Exit Config** softkey from the Main System Configuration screen to display the Exit Configuration screen. Use the **Prev Item** and **Next Item** softkeys to toggle the highlighted area between the following options: • SAVE CHANGES AND EXIT - saves all configuration changes you made and prompts you to Save to Card. If you specify Yes, the configuration information is saved to the installed Compact Flash card. Lastly, the message *POWER OFF TO EXIT CONFIG* is displayed. Power off the unit. • DISCARD CHANGES AND EXIT-disregards the changes you made and displays the message *POWER OFF TO EXIT CONFIG*. Power off the unit. • RETURN TO MAIN MENU- returns you to the Main System Configuration screen, where you can make more changes by selecting the **Change Config** softkey. You do not have to re-enter the passcode. **Note:** No changes are made if you turn the unit off without saving the configuration.



Chapter 2
Configuration Settings

This chapter describes all of the configuration settings on the R Series and includes the following sections.

- “General Settings” on page 12
- “ECG Settings” on page 17
- “Audio Settings” on page 19
- “Basic Defibrillation Settings” on page 20
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- “NIBP Settings (Optional)” on page 40
- “EtCO2 Settings (Optional)” on page 43
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- “Wi-Fi Settings (Optional)” on page 50

Note: The instructions in this chapter assume that you powered on the unit in System Configuration mode as described in “Entering System Configuration Mode” on page 2, and are familiar with how to access the settings, see “Accessing and Changing Configuration Settings” on page 9.

General Settings

General settings are attributes that affect the unit's basic operation and accessibility and include:

- Device Identifier
- Configuration Mode Passcode
- Code Markers

Device Identifier

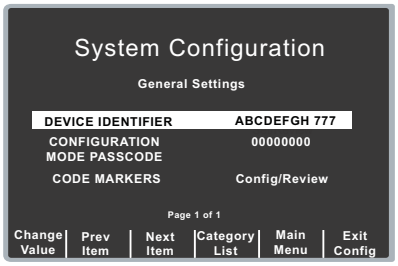
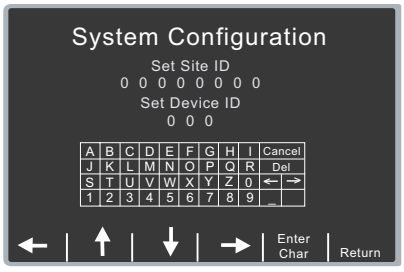
The Device Identifier feature allows you to set an 11-digit device identifier code. This code is divided into two sub codes: the site ID (consisting of eight alphanumeric characters) and the device ID (consisting of three alphanumeric characters). The device identifier is printed on the summary report and fax printouts.

Values are as follows:

Possible Values:	0 through 9, A through Z, blank and underscore inclusive for each digit.
Default:	00000000 000

Procedure

Follow these steps to set up a device identifier.

Step	Action
1.	From the Select Configuration Categories screen, select General, then press the **Enter** softkey. The General Settings screen appears. 
2.	Select DEVICE IDENTIFIER and press the **Change Value** softkey. The Device Identifier screen appears. 

Step	Action
3.	In the character selection table: • ←→ lets you move to the next or previous characters. Use the softkeys as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted character for 8 digits of the Site ID and the 3 digits of the Device ID. • **Return** — returns you to the General Settings screen. Press the **Return** softkey when you are finished entering the IDs. Note that selecting Enter also returns you to the General Settings screen.

Configuration Mode Passcode

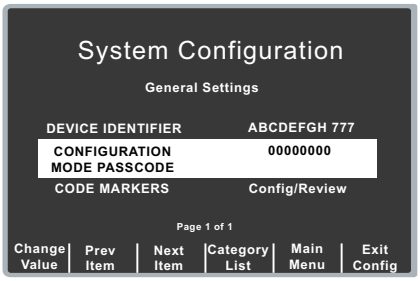
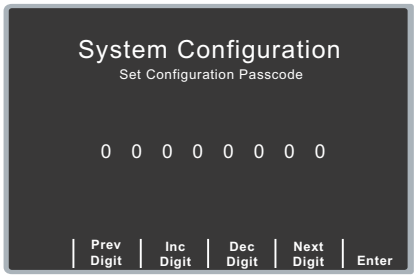
This feature allows you to set an 8-digit system configuration passcode. Once set, only those people who know the passcode can access the configuration mode and modify settings.

Values are as follows:

Possible Values:	0 through 3 inclusive for each digit
Default:	00000000

Procedure

Follow these steps to set up a configuration mode passcode:

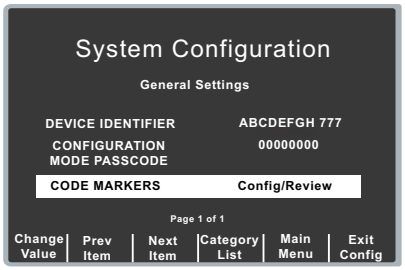
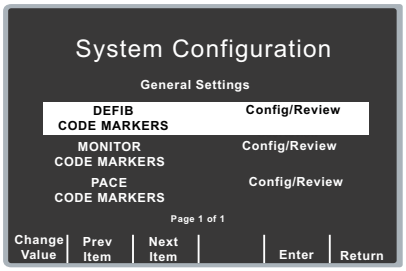
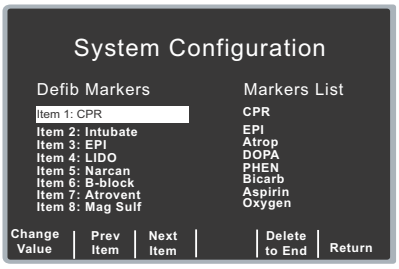
Step	Action	
1.	From the Select Configuration Categories screen, select General, then press the **Enter** softkey. The General Settings screen appears.	
2.	Select CONFIGURATION MODE PASSCODE and press the **Change Value** softkey. The Set Configuration Passcode screen appears.	
3.	Use the softkeys as follows: • **Prev Digit** — moves the highlight left to the previous digit. • **Inc Digit** or **Dec Digit** — increments or decrements the value of the selected digit. • **Next Digit** — moves the highlight right to the next digit to be entered. • **Enter** — saves the values that you entered and returns the unit to the General Configuration menu.	

Code Markers

This setting allows you to review and change the preconfigured list of Code Markers for use in DEFIB, MONITOR, and PACE modes. Code Marker settings are language dependent. You can specify up to three groups (MONITOR, DEFIB, and PACE) of 20 entries each.

Procedure

Follow these steps to review, change, or reset code marker settings:

Step	Action	
1.	From the Select Configuration Categories screen, select General, then press the **Enter** softkey. The General Settings screen appears.	
2.	Select CODE MARKERS and press the **Change Value** softkey. The Select Code markers screen appears.	
3.	Select either DEFIB CODE MARKERS, MONITOR CODE MARKERS, or PACE CODE MARKERS, then press the **Change Value** softkey to toggle between Change/Review or Set to Defaults. • If you select Set to Defaults, press the **Enter** softkey to set the chosen code markers to their default values. • If you select Change/Review, press the **Enter** softkey to access the screen that allows you to change the marker, as shown. **Note:** This example shows the screen that allows you to change DEFIB CODE MARKERS. Only 8 items are displayed on the screen at one time. When you get to the last item on the screen and press the **Next Item** softkey, you see the next 8 items. When you get to the last item on that screen and press the **Next Item** softkey, you see the remaining 4 items.	

Step	Action
4.	Use the softkeys as described to modify code marker items as needed: • **Prev Item** and **Next Item** — scrolls the highlight to the next or previous code marker item. • **Change Value** — allows you to pick a new marker for the selected item number. When you press the **Change Value** softkey, three new softkeys become available that allow you to highlight and select the code marker treatment for this item. They are: – **Prev Marker** and **Next Marker** — allow you to scroll through the Markers List and highlight the appropriate treatment. – **Enter Marker** — set the highlighted treatment for this code marker item. • **Delete to End** — delete all configured markers from the highlighted item number to the end of the list. You can then enter new clinical actions for each item. • **Return** — returns you to the previous menu.

ECG Settings

ECG monitoring settings are attributes associated with using the R Series unit for ECG monitoring, and include:

- Notch Filter
- Display Lead on Power-Up
- Frequency Response
- Gain on Power Up
- Enable Leads Off
- Enable Pacer Detection

Notch Filter

This setting allows you to select the ECG Notch Filter frequency for proper ac mains interference rejection.

Values are as follows**:**

Possible Values:	50 Hz, 60 Hz
Default:	60 Hz

Display Lead on Power-Up

This setting allows you to select the lead to be displayed when you power on the unit.

Values are as follows:

Possible Values:	Paddles/Pads, Lead I, Lead II, Lead III
Default:	Paddles/Pads

Frequency Response

This setting allows you to select the ECG filter bandwidth to be used during ECG monitoring. You can set the unit’s frequency to either help reduce noise, help with the diagnostic response, or set it as a default response.

Values are as follows:

Possible Values:	0.5 - 21 Hz, 0.5 - 40 Hz, 1.0 - 21 Hz
Default:	0.5 - 21 Hz

Gain on Power Up

This setting allows you to select the default size of the displayed ECG signal when you power on the unit.

Values are as follows:

Possible Values:	0.5 cm/mV, 1.0 cm/mV, 1.5 cm/mV, and 2.0 cm/mV
Default:	1.0 cm/mV for Manual mode

Enable Leads Off

This setting specifies whether the unit displays the *ECG LEADS OFF* message and a flat dashed ECG waveform when the unit detects that ECG leads do not have proper contact with the patient or the cable is not properly attached to the R Series unit. When set to No, the unit displays the *POOR LEAD CONTACT* message and the detected ECG signals when the cable or ECG leads are not properly attached to the patient or unit. When set to Yes, the unit displays the *ECG LEADS OFF* message and a flat dashed ECG waveform when the cable or ECG leads are not properly connected.

Caution Use care when interpreting ECG waveforms when the *POOR LEAD CONTACT* message displays; the ECG waveform may include a significant amount of artifact. Whenever possible, re-attach the leads before interpreting the waveform.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Note: When in Pacer mode, the R Series unit functions as if this configuration is set to Yes.

Enable Pacer Detection

This setting allows you to specify whether the unit should detect pacemaker signals from a patient with an implantable pacemaker and indicate those signals on the display. When you set this setting to Yes, a pacemaker marker is displayed on the ECG trace whenever the unit detects implanted pacer stimuli.

You can override this setting during normal operations. This setting simply indicates the default setting when you power on the unit.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Audio Settings

The Tone settings control audio functions on the R Series unit, and include:

- QRS Volume on Power-Up
- Low Battery Tone
- Enable Corrective Voice Prompts

QRS Volume on Power-Up

This setting allows you to select the default QRS beeper volume when you power on the unit. If you set this setting to Off, the unit does not beep during ECG monitoring.

Values are as follows:

Possible Values:	On, Off
Default:	On

Low Battery Tone

This setting allows you to select the interval between Low Battery warning beeps. The Low Battery warning message is displayed once per minute, regardless of this setting.

Values are as follows:

Possible Values:	1 minute, 5 minutes
Default:	1 minute

Enable Corrective Voice Prompts

This setting allows you to specify whether voice prompts accompany the following corrective messages:

- Press Charge
- Select Defib Mode
- Remove Sync
- Release Shock
- Use Paddle Discharge

Values are as follows:

Possible Values:	Yes, No
Default:	No

Basic Defibrillation Settings

The Basic Defibrillation settings control functions related to performing defibrillation with the R Series unit in Manual mode and include:

- Defib Default to Pads
- Basic Auto Energy Escalation
- Retain Sync After Defib
- Defib Ready Hold Time
- Enable Remote Sync

Defib Default to Pads

This setting allows you to override the “Display Lead on Power-Up” setting and use Pads/ Paddles whenever the unit is switched to DEFIB mode.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Basic Auto Energy Escalation

This setting allows you to configure the unit to automatically increment defibrillation energy to pre-specified levels after each of the first two shocks in Manual mode (see “Energy Level: Shock 1” on page 22, “Energy Level: Shock 2” on page 23, and “Energy Level: Shock 3” on page 23). When set to Yes, the *ENERGY INCREMENTED* message is displayed whenever the unit automatically increments the selected defibrillator energy after delivery of a shock with paddles or MFE pads.

Note: Manually changing the energy level outside the pre-programmed sequence and delivering a shock disables the auto energy escalation function until the unit is turned off for more than 10 seconds, then turned back on.

This option increments the energy level regardless of Shock Advisory activation or status.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Retain Sync After Defib

This setting allows you to configure the unit to remain in SYNC mode after a synchronized cardioversion shock. SYNC mode remains on until the **Sync On/Off** softkey is pressed again or the unit is switched out of DEFIB mode.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Defib Ready Hold Time

This setting allows you to specify the amount of time that the R Series unit will hold a charge before disarming.

Values are as follows:

Possible Values:	60 secs, 120 secs
Default:	60 secs

Enable Remote Sync

This setting allows you to enable and disable the Remote Sync feature. If disabled (No), you can perform synchronized cardioversion using only the R Series ECG signal. If enabled (Yes), you can press the Sync On/Off softkey to select either Remote Sync or Sync.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Advisory Defib

The Advisory Defibrillation settings control functions related to performing defibrillation with an R Series unit in Advisory mode and include:

- Energy Level: Shock 1
- Energy Level: Shock 2
- Energy Level: Shock 3
- Ped Energy Level Shock 1
- Ped Energy Level Shock 2
- Ped Energy Level Shock 3
- Auto Analyze
- Enable Check Pulse Prompt
- Check Patient Prompt
- Auto Charge in Advisory Mode
- Enable Voice in Advisory Mode
- Display DO CPR Message
- CPR Message After Shock
- CPR Interval
- Stacked Shocks
- Restart Analysis After CPR

Energy Level: Shock 1

This setting allows you to select the energy level used for the first shock delivered by the defibrillator when the unit is:

- in AED mode or Advisory mode and using pads
- in Manual mode, using external paddles or pads

Energy Level: Shock 1 is the energy level to which the unit defaults when you power on the unit with external paddles or pads connected.

Values are as follows:

Possible Values:	**Adult:** 1-10, 15, 20, 30, 50, 75, 100, 120, 150, and 200 J
Default:	**Adult:** 120 J

Energy Level: Shock 2

This setting allows you to select the energy level used for the second shock delivered by the defibrillator when the unit is:

- in AED mode or Advisory mode and using pads
- in Manual mode, using external paddles or pads, and Basic Auto Energy Escalation is set to Yes

Values are as follows:

Possible Values:	**Adult:** 1-10, 15, 20, 30, 50, 75, 100, 120, 150, and 200 J
Default:	**Adult:** 150 J

Energy Level: Shock 3

This setting allows you to select the energy level used for the third and all subsequent shocks delivered by the defibrillator when the unit is:

- in AED mode or Advisory mode and using pads
- in Manual mode, using external paddles or pads, and Basic Auto Energy Escalation is set to Yes

Values are as follows:

Possible Values:	**Adult:** 1-10, 15, 20, 30, 50, 75, 100, 120, 150, and 200 J
Default:	**Adult:** 200 J

Ped Energy Level Shock 1

This setting allows you to select the energy level used for the first pediatric shock delivered by the defibrillator when the unit is:

- in Advisory mode and using OneStep™ Pediatric electrodes.
- in Manual mode, using OneStep Pediatric electrodes

Ped Energy Level: Shock 1 is the energy level to which the unit defaults when you power on the unit with pediatric electrode pads.

Values are as follows:

Possible Values:	**Pediatric:** 1-10, 15, 20, 30, 50, 70, 85, 100, 120, 150, and 200 J
Default:	**Pediatric:** 50 J

Warning! **The R Series will default to pediatric Shock 1, 2, and 3 energies only when ZOLL® OneStep pediatric electrodes are used. With *pedi*•padz® and *pedi*•padz II (or other non-ZOLL pediatric electrodes), you are required to manually set the selected energy to pediatric levels, per institutional protocols.**

Ped Energy Level Shock 2

This setting allows you to select the energy level used for the second pediatric shock delivered by the defibrillator when the unit is:

- in Advisory mode and using OneStep Pediatric electrodes.
- in Manual mode, using OneStep Pediatric electrodes and Basic Auto Energy Escalation is set to Yes

Values are as follows:

Possible Values:	**Pediatric:** 1-10, 15, 20, 30, 50, 70, 85, 100, 120, 150, and 200 J
Default:	**Pediatric:** 70 J

Ped Energy Level Shock 3

This setting allows you to select the energy level used for the third and all subsequent shocks delivered by the defibrillator when the unit is:

- in Advisory mode and using OneStep Pediatric electrodes.
- in Manual mode, using OneStep Pediatric electrodes and Basic Auto Energy Escalation is set to Yes.

Values are as follows:

Possible Values:	**Pediatric:** 1-10, 15, 20, 30, 50, 70, 85, 100, 120, 150, and 200 J
Default:	**Pediatric:** 85 J

Auto Analyze

This setting allows you to specify whether the unit automatically repeats ECG rhythm analyses after the delivery of shocks in Advisory mode and works in conjunction with the Stacked Shocks setting described on page 28. Enabling this setting also enables the occurrence of post-shock prompting to *DO CPR* and *PRESS ANALYZE*. When set to No, which is the Manual mode default, the unit does not perform analysis automatically (with the exception of Smart Alarms and the first analysis when you power on the unit in AED mode, if the unit is configured to analyze when you power on the unit).

When set to Yes and the Stacked Shocks options is set to 3, the unit automatically reanalyzes the patient's ECG rhythm after the first and second shocks in each three-shock sequence. Following delivery of the final shock, the unit stops automatic reanalysis and either displays a *CHECK PULSE* prompt, or immediately begins a CPR interval, depending on additional settings. This function operates only when the Auto Charge in Advisory Mode is set to Yes.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Enable Check Pulse Prompt

This setting works in conjunction with the Auto Analyze function and determines whether the unit displays the prompt *CHECK PULSE* for 10 seconds immediately after delivery of the final shock in a stacked shock sequence, after each No Shock Advised analysis result, or both. After *CHECK PULSE* clears, the CPR interval begins.

When set to No, the unit immediately begins the CPR interval following delivery of the final shock or after each No Shock Advised analysis result.

Values are as follows:

Possible Values:	Yes, No, After No Shock Only, After Shock Only
Default:	Yes

Check Patient Prompt

This setting allows you to change the display message and the voice prompt issued when a shockable rhythm has been detected by background ECG analysis and Heart Rate Alarms are enabled.

Values are as follows:

Possible Values:	*CHECK PATIENT, PRESS ANALYZE*
Default:	*CHECK PATIENT*

Auto Charge in Advisory Mode

This setting allows you to specify whether the unit automatically charges the defibrillator to the configured or user-selected energy setting after detection of a shockable rhythm by ECG analysis. When set to Yes, the unit automatically charges the defibrillator to the configured or user-selected energy setting. When set to No, it does not.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Enable Voice in Advisory Mode

This setting allows you to enable or disable voice prompts when using shock advisory functions (ECG analysis) in Manual mode. If enabled, the voice prompts sound at the appropriate time. If disabled, the unit emits two beeps instead of the voice prompts in Manual mode.

Voice prompts are in the language specified by the Language option.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Display DO CPR Message

This setting allows you to specify whether the unit displays the configured CPR prompt (described in CPR Text Message) for the configured CPR time interval after each set of stacked shocks, even if a perfusing rhythm is present. The unit behaves differently depending on this particular setting value.

Note: This setting is always set to Yes in AED mode.

- When set to No (the Manual mode default), the unit behaves as follows:
  - At the end of any analysis with an outcome of no shock advised, the unit displays the *NO SHOCK ADVISED* message. The unit then remains idle for the configured CPR interval duration. After the CPR interval, if the **ANALYZE** softkey has not been pressed, the *PRESS ANALYZE* message is displayed and remains until a new analysis is started or the mode is changed.
  - At the end of a stacked shock sequence (assuming the final shock is delivered) and when the optional 10 second *CHECK PULSE* message disappears, the CPR interval begins. The unit remains idle for the duration of the CPR interval. After the CPR interval, if the **ANALYZE** softkey has not been pressed, the *PRESS ANALYZE* prompt is displayed and remains until a new analysis is started or the mode is changed.
  - If the defibrillator disarms itself after it was charged (because the Defib Ready time elapsed before a shock was delivered), the unit displays the *PRESS ANALYZE* prompt until the **ANALYZE** softkey is pressed.
- When set to Yes, the unit behaves as follows:
  - At the end of any analysis with an outcome of no shock advised, the unit displays the *NO SHOCK ADVISED* message for 10 seconds, after which the message is cleared and the configured CPR prompt is displayed for the duration of the CPR interval. After the CPR interval, the *PRESS ANALYZE* prompt is displayed until a new analysis is started or a mode change occurs. You can start a new analysis during the CPR interval by pressing the **ANALYZE** softkey.
  - At the end of a stacked shock sequence (assuming the final shock is delivered) and when the optional 10 second *CHECK PULSE* message disappears, the CPR interval begins. The configured CPR prompt is displayed for the duration of the CPR interval. After the CPR interval, the CPR prompt is cleared and a new analysis starts automatically.

– If the defibrillator disarms itself after it was charged (because the Defib Ready time elapsed before a shock was delivered), the unit displays the *PRESS ANALYZE* prompt until the **ANALYZE** softkey is pressed.

Note: The Display DO CPR Message feature is operational only when the Auto Charge in Advisory Mode and Auto Analyze options are both set to Yes.

Values are as follows:

Possible Values:	Yes, No
Default:	No

CPR Message After No Shock Advised

This parameter determines which CPR message/voice prompt is issued during the CPR interval after a No Shock Advised analysis result. The selected message is displayed throughout the entire CPR interval.

Values are as follows:

Possible Values:	IF NO PULSE, PERFORM CPR; PERFORM CPR
Default:	IF NO PULSE, PERFORM CPR

CPR Message After Shock

This parameter determines which CPR message/voice prompt is issued during the CPR interval after the delivery of the final shock in a stacked shock sequence. The selected message is displayed throughout the entire CPR interval.

Values are as follows:

Possible Values:	IF NO PULSE, PERFORM CPR; PERFORM CPR
Default:	IF NO PULSE, PERFORM CPR

Stacked Shocks

The setting specifies the number of stacked shocks that must be administered prior to the activation of a CPR interval and works in conjunction with the Auto Analyze setting. If set to 3, the unit will auto analyze 3 times before prompting the user. If set to 1, the unit will auto analyze once.

Values are as follows:

Possible Values:	1, 3
Default:	1

Restart Analysis After CPR

When this parameter is set to Yes, the analysis starts automatically after the CPR interval following each stacked shock sequence. Analyses do not automatically restart after a CPR interval following No Shock Advised results. When this parameter is set to No, the PRESS ANALYZE message is displayed, but the analysis does not restart.

Note: This setting is always set to Yes in AED mode.

Values are as follows:

Possible Values:	Yes, No
Default:	No

CPR Interval

This setting allows you to specify the duration of the CPR interval as described in the Display DO CPR Message setting. Values are as follows:

Possible Values:	1, 1.5, 2, 2.5, 3, 3.5, or 4 minutes
Default:	2 minutes

CPR Settings

The CPR settings control functions related to Real CPR Help® function:

- Enable CPR Voice Prompts
- Enable CPR Display
- Enable CPR Metronome

Enable CPR Voice Prompts

This setting allows you to enable (Yes) or disable (No) voice prompts during CPR. Voice prompts are in the language specified by the Language option.

Note: This setting is always set to Yes in AED mode.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Enable CPR Display

This setting allows you to enable (Yes) or disable (No) the display of the CPR indicator on the monitor.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Enable CPR Metronome

This setting allows you to enable (Yes) or disable (No) the audible CPR metronome.

Note: This setting is always set to Yes in AED mode.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Pace Settings

The Pace settings are attributes that control functions related to performing pacing with an R Series unit and include:

- Pace Rate Setting on Power-Up
- Async Softkey in Pace Mode

Pace Rate Setting on Power-Up

This setting allows you to set the default pace rate, pulses per minute (ppm), of the R Series when you power on the unit.

Values are as follows:

Possible Values:	30 ppm to 102 ppm (inclusive in increments of 4 ppm)
Default:	70 ppm

Async Softkey in Pace Mode

This setting allows you to set the unit to display the **Async Pacing On/Off** softkey when the unit is in Pace mode. For information about Asynchronous Pacing, refer to the R Series Operator's Guide.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Alarms Settings

Alarm settings are attributes associated with Alarm states and thresholds for the R Series unit and include:

- Alarm Limits at Power Up
- Alarms Active at Power Up

Alarm Limits at Power Up

This option allows you to enable or disable, and set high and low threshold values for the ECG Heart Rate, and the SpO_2 alarms on the R Series unit. All alarms listed below (Heart Rate and optional devices SpO_2 , $EtCO_2$, NIBP) are enabled by default. Values are as follows:

Possible Values:	**Heart Rate:** **High**: 60 - 280 beats per minute (BPM) inclusive in 5 BPM increments **Low**: 20 - 100 beats per minute (BPM) inclusive in 5 BPM increments **Optional Devices:** **SpO_2:** **High**: 72-100% in 1% increments **Low**: 70-98% in 1% increments **$EtCO_2$:** **High:** 5-100 mmHg in increments of 5 0.6-13.3 kPa in increments of .67 0.6-13.1% in increments of .66 **Low:** 0-95 mmHg in increments of 5 0.0-12.6 kPa in increments of .67 0-12.5% in increments of 0.66 **Resp Rate:** **High:** 5-150 breaths per minute in increments of 5 **Low:** 0-100 breaths per minute in increments of 5 **NIBP Sys:** **Adult:** **High:** 80-260 mmHg in increments of 5 10.7-34.7 kPa in increments of 0.67 **Low:** 40-140 mmHg in increments of 5 5.3-18.7 kPa in increments of 0.67 **Pediatric:** **High:** 80-160 mmHg in increments of 5 10.7-21.3 kPa in increments of 0.67 **Low:** 35-140 mmHg in increments of 5 4.7-18.7 kPa in increments of 0.67 **Neonatal:** **High:** 60-130 mmHg in increments of 5 8.0-17.3 kPa in increments of 0.67 **Low:** 25-120 mmHg in increments of 5 3.3-16.0 kPa in increments of 0.67

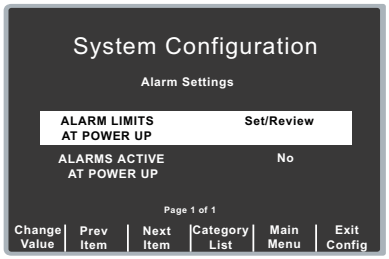
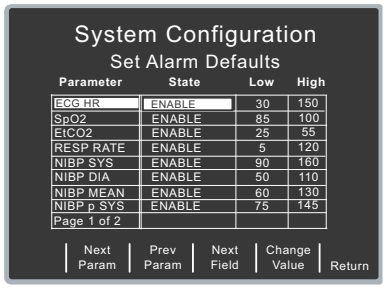
Possible Values:	**NIBP Dia:** **Adult:** **High:** 50-200 mmHg in increments of 5 6.7-26.7 kPa in increments of 0.67 **Low:** 25-100 mmHg in increments of 5 3.3-13.3 kPa in increments of 0.67 **Pediatric:** **High:** 50-130 mmHg in increments of 5 6.7-17.3 kPa in increments of 0.67 **Low:** 20-100 mmHg in increments of 5 2.7-13.3 kPa in increments of 0.67 **Neonatal:** **High:** 30-105 mmHg in increments of 5 4.0-14.0 kPa in increments of 0.67 **Low:** 20-100 mmHg in increments of 5 2.7-13.3 kPa in increments of 0.67 **NIBP Mean:** **Adult:** **High:** 60-220 mmHg in increments of 5 8.0-29.3 kPa in increments of 0.67 **Low:** 30-120 mmHg in increments of 5 4.0-16.0 kPa in increments of 0.67 **Pediatric:** **High:** 60-140 mmHg in increments of 5 8.0-18.7 kPa in increments of 0.67 **Low:** 30-120 mmHg in increments of 5 4.0-16.0 kPa in increments of 0.67 **Neonatal:** **High:** 35-110 mmHg in increments of 5 4.7-14.7 kPa in increments of 0.67 **Low:** 30-105 mmHg in increments of 5 4.0-14.0 kPa in increments of 0.67

Default:	**Heart Rate:** **High**: 150 BPM **Low**: 30 BPM **Optional Devices:** **SpO_2:** **High**: 100% **Low**: 85% **$EtCO_2$:** **High:** 55 mmHg 7.3 kPa 7.2% **Low:** 25 mmHg 3.3 kPa 3.2% **Resp Rate:** **High:** 120 **Low:** 5 **NIBP Sys:** **Adult:** **High:** 160 mmHg 21.3 kPa **Low:** 90 mmHg 12.0 kPa **Pediatric:** **High:** 145 mmHg 19.3 kPa **Low:** 75 mmHg 10.0 kPa **Neonatal:** **High:** 100 mmHg 13.3 kPa **Low:** 50 mmHg 6.7 kPa

Default	**NIBP Dia:** **Adult:** **High:** 110 mmHg 14.7 kPa **Low:** 50 mmHg 6.7 kPa **Pediatric:** **High:** 100 mmHg 13.3 kPa **Low:** 35 mmHg 4.7 kPa **Neonatal:** **High:** 70 mmHg 9.3 kPa **Low:** 30 mmHg 4.0 kPa **NIBP Mean:** **Adult:** **High:** 130 mmHg 17.3 kPa **Low:** 60 mmHg 8.0 kPa **Pediatric:** **High:** 110 mmHg 14.7 kPa **Low:** 50 mmHg 6.7 kPa **Neonatal:** **High:** 80 mmHg 10.7 kPa **Low:** 35 mmHg 4.7 kPa

Procedure

Follow these steps to change the state or value of the ECG Heart Rate alarms:

Step	Action
1.	From the Select Configuration Categories screen, select Alarms, then press the **Enter** softkey. The Alarms Setting screen appears. 
2.	Select Alarm Limits at Power Up, and press the **Change Value** softkey. The Set Alarm Defaults screen appears. 
3.	Modify alarms using the softkeys as follows: • **Next Param** and **Prev Param** — moves the highlight through the various physiological settings. • **Next Field** — moves highlight to the next field to the right. Use this key to change the High and Low settings. • **Change Value** — allows you to change the value of the highlighted field. When you press this softkey, the following softkeys become available: – **Inc >** and **Dec <** — increases and decreases the value of the field. – **Enter** — applies the value you specified for this field. – **Cancel** — returns you to the previous screen without applying any changes. • **Return** — enters the values you specified, and returns you to the previous screen.

Alarms Active at Power Up

This setting allows you to specify whether alarms are automatically active when you power on the unit. This setting applies to all alarms enabled by the Alarm Limits At Power Up setting.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Display Settings

The Display settings are attributes that control what and how things appear on the R Series monitor and include:

- Display Time
- Select Trace 2 At Power Up
- Select Trace 3 At Power Up
- ECG Color
- SpO2 Color
- CPR Color
- EtCO2 Color
- NIBP Color
- SPO2 at Power Up

Display Time

This setting specifies whether to display the elapsed time since the unit was turned on (Elapsed Time), or the real time (Real Time), or not to display the time (Off).

The elapsed time continues to be counted for up to 10 seconds after you power off the unit. This gives the operator adequate time to change the battery without resetting the elapsed timer.

Elapsed time is reset to zero (00:00) whenever the unit has been off for more than 10 seconds.

Values are as follows:

Possible Values:	Real Time, Off, Elapsed Time
Default:	Off

Select Trace 2 At Power Up

This setting allows you to set which waveform will appear in the Trace 2 position on the display when you turn on the R Series unit.

Values are as follows:

Possible Values:	Off, 3 Lead ECG, CPR, Filtered ECG, SpO2, EtCO2
Default:	Off

Note: When you set this setting to 3 Lead ECG, the Select Trace 3 At Power Up setting automatically defaults to 3 Lead ECG.

Select Trace 3 At Power Up

This setting allows you to select which waveform will appear in the Trace 3 position on the display when you turn on the R Series unit.

Values are as follows:

Possible Values:	Off, 3 Lead ECG, CPR, Filtered ECG, SpO2, EtCO2
Default:	Off

Note: When you select 3 Lead ECG, the Select Trace 2 At Power Up setting automatically defaults to 3 Lead ECG.

ECG Color

This setting allows you to set the display color for the ECG waveform and information displayed on the R Series monitor.

Values are as follows:

Possible Values:	Red, Cyan, Purple, Blue, Green, Yellow, White
Default:	Green

SpO_2 Color

This setting allows you to specify the color of the SpO_2 information displayed (if installed) on the R Series monitor.

Values are as follows:

Possible Values:	Cyan, Red, Purple, Yellow, White, Blue, Green
Default:	Cyan

CPR Color

This setting allows you to specify the color of the CPR indicator and waveform on the R Series monitor.

Values are as follows:

Possible Values:	Red, Cyan, Purple, Blue, Green, Yellow, White
Default:	Purple

$EtCO_2$ Color

This setting allows you to specify the color of the CO_2 indicator and waveform (if installed) on the R Series monitor. Values are as follows:

Possible Values:	Blue, Green, Cyan, Red, Purple, Yellow, White
Default:	Yellow

NIBP Color

This setting allows you to specify the color of the NIBP indicator (if installed) on the R Series monitor. Values are as follows:

Possible Values:	White, Blue, Green, Cyan, Red, Purple, Yellow
Default:	White

SPO_2 at Power Up

This setting allows you to control whether the SPO_2 box appears on the R Series monitor (if installed). If set to Yes, the box will be displayed regardless of whether the SPO_2 sensor is connected to the unit. If set to No, the box will not appear until the sensor is connected to the unit. Values are as follows:

Possible Values:	Yes, No
Default:	No

NIBP Settings (Optional)

NIBP configuration parameters are available for update only if the NIBP monitoring option is installed on the unit, and include:

- Blood Pressure Units
- Trigger NIBP Meas on BP Alarm
- Trigger NIBP Meas on HR Alarm
- NIBP Auto Interval Default
- Adult Initial Cuff Inflation
- Pediatric Initial Cuff Inflation
- Neonatal Initial Cuff Inflation
- NIBP Patient Mode at Power Up
- NIBP Button Press & Hold

Blood Pressure Units

This parameter allows you to set the NIBP unit of measurement.

Values are as follows:

Possible Values:	mmHg (millimeters of mercury), kPa (kilopascals)
Default:	mmHg

Trigger NIBP Meas on BP Alarm

This parameter allows you to specify whether or not the R Series unit initiates a single additional blood pressure measurement when any of the NIBP alarms trigger.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Trigger NIBP Meas on HR Alarm

This parameter allows you to specify whether or not the R Series unit initiates a single blood pressure measurement when the heart rate/pulse rate alarm triggers.

Values are as follows:

Possible Values:	Yes, No
Default:	No

NIBP Auto Interval Default

This parameter allows you to set the default for the amount of time between automatic measurements.

Values are as follows:

Possible Values:	2.5, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 45, 60, 90, 120 minutes
Default:	30 minutes

Adult Initial Cuff Inflation

This parameter allows you to set the default NIBP cuff inflation pressure (the pressure to which the NIBP cuff inflates at the beginning of its first measurement after power up).

Values are as follows:

Possible Values:	mmHg: 120, 140, 160, 180, 200, 220, 240, 260 kPa: 16.0, 18.7, 21.3, 24.0, 26.7, 29.3, 32.0, 34.7
Default:	mmHg: 160 kPa: 21.3

Pediatric Initial Cuff Inflation

This parameter allows you to set the default pediatric NIBP cuff inflation pressure (the pressure to which the NIBP cuff inflates at the beginning of its first measurement after power up, if set to pediatric).

Values are as follows:

Possible Values:	mmHg: 80, 90, 100, 110, 120, 130, 140, 150 kPa: 10.7, 12.0, 13.3, 14.7, 16.0, 17.3, 18.7, 20.0
Default:	mmHg: 120 kPa: 16.0

Neonatal Initial Cuff Inflation

This parameter allows you to set the default NIBP cuff inflation pressure (the pressure to which the NIBP cuff inflates at the beginning of its first measurement after power up, if set to neonatal).

Values are as follows:

Possible Values:	mmHg: 60, 70, 80, 90, 100, 110, 120, 130 kPa: 8.0, 9.3, 10.7, 12.0, 13.3, 14.7, 16.0, 17.3
Default:	mmHg: 90 kPa: 12.0

NIBP Patient Mode at Power Up

This parameter allows you to set the default patient mode at power up.

Values are as follows:

Possible Values:	Adult, Pediatric, Neonate
Default:	Adult

NIBP Button Press & Hold

This parameter allows you to define which NIBP function is activated when the front panel NIBP button ( ) is pressed and held for at least 2 seconds. You can configure the unit to either:

- Begin a sequence of STAT measurements, or
- Begin taking NIBP measurements at repeating, selected intervals.

Values are as follows:

Possible Values:	Stat, Auto
Default:	Stat

Enable Motion Tolerance

This parameter allows you enable compensation for motion tolerance, such as on a moving stretcher.

Values are as follows:

Possible Values:	Yes, No
Default:	No

$EtCO_2$ Settings (Optional)

$EtCO_2$ configuration parameters are available for update only if the $EtCO_2$ monitoring option is installed on the unit and include:

- Default EtCO2 Units
- Displayed Zoom Level
- Default EtCO2 Comp Setting
- Power Save Mode at Power Up
- $EtCO_2$ Average On Power Up

Default $EtCO_2$ Units

This parameter allows you to set the $EtCO_2$ unit of measurement.

Values are as follows:

Possible Values:	mmHg (millimeters of mercury), kPa (kilopascals),% (percent)
Default:	mmHg

Displayed Zoom Level

This parameter allows you to set the default scale setting for the displayed capnographic waveform. It does not affect the printed waveform or the waveform data stored on the data card.

Values are as follows:

Possible Values:	mmHg: 0-12.5, 0-25, 0-50, 0-75, 0-100, 0-150 kPa: 0-1.7, 0-3.3, 0-6.6, 0-10.0, 0-13.3, 0-20.0
Default:	mmHg: 0-50 kPa: 0-6.6

Default $EtCO_2$ Comp Setting

This parameter allows you to set the default compensation for CO_2.

Values are as follows:

Possible Values:	None, O2, N2O, O2 & N2O
Default:	None

Power Save Mode at Power Up

When this parameter is set to Yes, the unit automatically enters $EtCO_2$ power save mode when powered on with a CAPNOSTAT sensor connected. The user must then enable the $EtCO_2$ device using the **Param**/**EtCO2** softkey menu before use.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

$EtCO_2$ Average On Power Up

This parameter sets the default time period over which the $EtCO_2$ values are averaged.

Values are as follows:

Possible Values:	1 breath, 10 seconds, 20 seconds
Default:	10 seconds

Printer & Report Settings

The Printer and Report Config settings are attributes that control what and how things are printed:

- Set Report Restart Delays
- Auto Generate Strips
- Print 3 Leads When Leads Sel.

Note: Printing is not available in AED mode.

Set Report Restart Delays

This setting allows you to review or change the length of time the device must be turned off before it automatically erases all summary report and full disclosure data.

Values are as follows:

Possible Values:	5 Min, 15 Min, 30 Min, 90 Min, 6 Hours, 1.5 Days, Manual
Default:	15 Min

Auto Generate Strips

This setting allows you to set the strip chart recorder to automatically begin printing after a defibrillator discharge or whenever alarms are triggered while in Manual mode.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Print 3 Leads When Leads Sel.

This setting allows you to specify whether or not the strip chart recorder prints three (3) simultaneous leads of the patient ECG when Leads are selected and a 5- lead cable is in use.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Readiness Test Settings

The Readiness Test settings are attributes that control how and when the R Series unit is self-tested. It includes the following settings:

- Automatic Readiness Test
- Readiness Test Time
- Print Readiness Test Results
- Enable Readiness Test Audible Alert
- OneStep Padz Installed

Automatic Readiness Test

This setting allows you to specify whether the R Series unit performs the automatic device check.

Values are as follows:

Possible Values:	Off, Once a Day
Default:	Once a Day

Readiness Test Time

This setting allows you to specify what time the R Series unit performs the automatic device check, if Automatic Device Check is set to Once a Day.

Values are as follows:

Possible Values:	12:00 am, 1:00 am, 2:00 am, 3:00 am, 4:00 am, 5:00 am
Default:	2:00 am

Print Readiness Test Results

This setting allows you to specify whether the R Series unit prints the results of the automatic device check at the completion of the check, if Automatic Device Check is set to Once a Day. If you want the unit to print results only when a failure is detected during the device check, set this setting to Only If Fail.

Values are as follows:

Possible Values:	Yes, No, Only if Fail
Default:	No

Enable Readiness Test Audible Alert

This setting allows you to specify whether the unit emits a beep when the automatic device check fails.

Values are as follows:

Possible Values:	FUTURE CAPABILITY
Default:	No

OneStep Padz Installed

This setting allows you to specify whether the R Series unit tests the R Series OneStep electrodes as part of the readiness test check, and which electrodes it tests.

- If this setting is set to any of its values (including No or Base), and CPR, MwP or Complete electrodes are detected, they will be tested and the resulting status (pass/fail) is included in the readiness result.
- If this setting is set to CPR/MwP/Complete, and none of these OneStep electrodes are connected, or if the cable is not connected to the unit, the readiness result will indicate a failure (Electrode: Not Connected).
- If this setting is set to Base or No, and the cable is correctly connected to a short (Base electrode package, test port, or paddles in the wells), the unit will perform the readiness test and not fail based on electrode type.

Values are as follows:

Possible Values:	CPR/MwP/Complete, No, Base
Default:	Base

Note: The OneStep Padz Installed option should remain set to the manufacturing default, Base, unless you are using OneStep electrodes marked Rev. B or above:

8900-0212-XX Rev. B or above for OneStep Pacing
8900-0213-XX Rev. B or above for OneStep CPR
8900-0214-XX Rev. B or above for OneStep Complete

AED Settings

The AED parameters are attributes that affect functions related to performing defibrillation with an R Series unit in AED mode and include:

- Display ECG in AED Mode
- Display HR in AED Mode
- Manual Confirm Enable
- Extra CPR Interval Before 1st Analysis
- Duration of Extra CPR Interval
- Display Remaining CPR Timer

Display ECG in AED Mode

This parameter allows you to set the unit to either display or not display the patient's ECG trace on the monitor while in AED mode.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Display Heart Rate in AED Mode

This parameter allows you to set the unit to display the patient heart rate on the monitor while in AED mode.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Manual Confirm Enable

This parameter allows you to set a confirmation key to enter Manual mode.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Extra CPR Interval Before 1st Analysis

This parameter pertains only to AED mode.

When this parameter is set to No (default), and the unit detects a pad connection upon power-on, it automatically starts an ECG analysis. If the unit is powered on with no pads connected, the unit displays the *ATTACH PADS* prompt until pads are connected. Once pads are connected, the unit automatically starts an ECG analysis.

When this parameter is set to Yes, the unit displays the prompts: *CHECK PULSE* for 10 seconds, then *IF NO PULSE, PERFORM CPR* for the configured Extra CPR interval at power on. At the end of the CPR period, if the unit does not detect a pads connection, it displays the prompt *ATTACH PADS* until pads are connected. If a pads connection is detected, the unit automatically starts an ECG analysis. You can start an ECG analysis during the CPR interval by pressing the **ANALYZE** softkey.

Values are as follows:

Possible Values:	Yes, No
Default:	No

Duration of Extra CPR Interval

This parameter allows you to specify the duration of the extra CPR interval (see previous entry). It has no effect if “Extra CPR Interval Before 1st Analysis” is set to No.

Values are as follows:

Possible Values:	1, 1.5, 2, 2.5, 3, 3.5 or 4 minutes
Default:	2 minutes

Display Remaining CPR Timer

This parameter allows you to specify whether to display remaining CPR interval during CPR.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

Wi-Fi Settings (Optional)

The Wi-Fi settings are attributes that control how files are transferred and the security method that is used.

Full Disclosure Transfer Mode

This setting allows you to determine the following:

- whether full disclosure file transfers are supported
- whether the Send Report softkey is displayed
- whether the full disclosure file transmits by infrastructure mode (to a Server) or ad hoc mode (to a PDA).

Values are as follows:

Possible Values:	Server, None, PDA
Default:	Server

Defib History Transfer Mode

This setting allows you to specify whether device check files and activity log files will be transmitted, and determines whether Defib History to Wi-Fi softkey is displayed.

Values are as follows:

Possible Values:	Both, None, Manual, Automatic
Default:	None

Infrastructure Mode Options

DHCP/Static IP

This setting allows you to either manually set the static IP address or retrieve the IP address from a DHCP server.

Note: If this setting is set to Static IP, you need to set the following settings: Gateway IP Address, Subnet Mask, and DNS IP Address.

Values are as follows:

Possible Values:	Static IP, DHCP
Default:	DHCP

Local IP Address

This setting allows you to specify the defibrillator's IP address used in the static configuration.

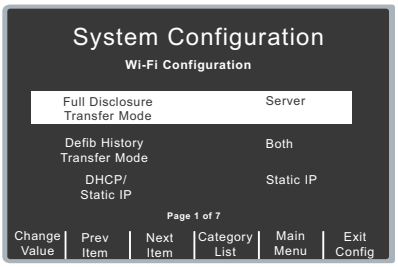
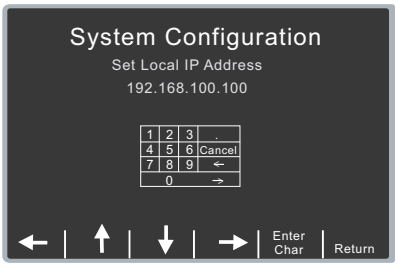
Note: This setting is available only when DHCP/Static IP is set to Static IP.

Values are as follows:

Possible Values:	XXX.XXX.XXX.XXX where XXX is 000 to 255
Default:	192.168.100.100

Procedure

Follow these steps to set up a Local IP Address.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Configuration screen appears. 
2.	Press the Next Item softkey until Local IP Address appears and press the **Change Value** softkey. The Set Local IP Address screen appears. 
3.	Use the softkey as follows: • ← → — moves the highlight left and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the IP address. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the address.

Gateway IP Address

This setting allows you to specify the router's IP used in the static configuration.

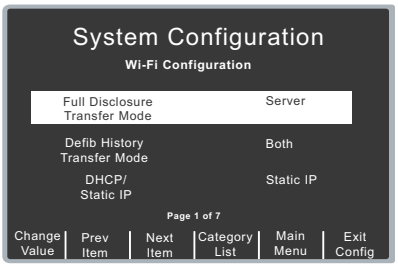
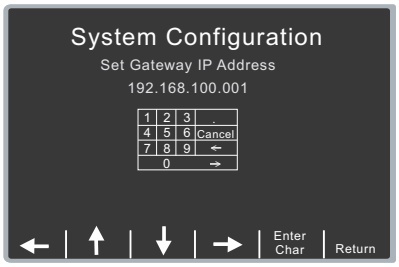
Note: This setting is accessible only when DHCP/Static IP is set to Static IP.

Values are as follows:

Possible Values:	XXX.XXX.XXX.XXX where XXX is 000 to 255
Default:	192.168.100.001

Procedure

Follow these steps to set up a Gateway IP Address.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Configuration screen appears. 
2.	Press the Next Item softkey until Gateway IP Address appears and press the **Change Value** softkey. The Set Gateway IP Address screen appears. 
3.	Use the softkey as follows: • ← → — moves the highlight left and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the IP address. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the address.

Subnet Mask

This setting allows you to specify the subnet mask used in the static configuration.

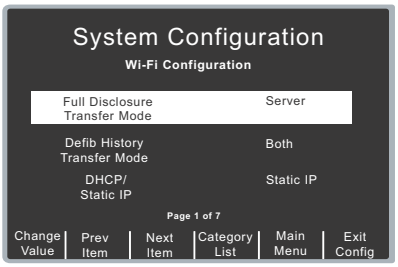
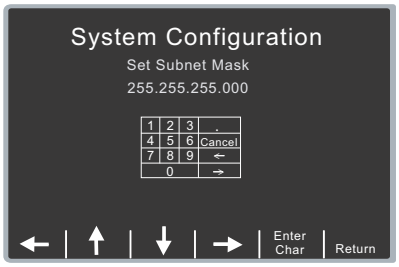
Note: This setting is accessible only when DHCP/Static IP is set to Static IP.

Values are as follows:

Possible Values:	XXX.XXX.XXX.XXX where XXX is 000 to 255
Default:	255.255.255.000

Procedure

Follow these steps to set up a subnet mask.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Configuration screen appears. 
2.	Press the Next Item softkey until Subnet Mask appears and press the **Change Value** softkey. The Set Subnet Mask screen appears. 
3.	Use the softkey as follows: • ← → — moves the highlight left and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the subnet mask. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the subnet mask.

Use DNS

This setting allows you to specify whether to use a DNS to obtain the server IP address from the server name.

Values are as follows:

Possible Values:	Yes, No
Default:	Yes

DNS IP Address

This setting allows you to specify the IP address of the DNS server to use if the following conditions are met:

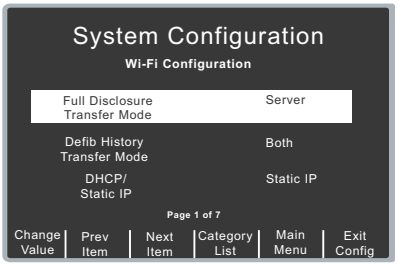
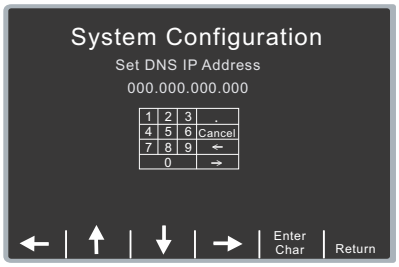
- Use DNS setting is set to Yes
- DHCP/Static IP setting is set to Static IP

Values are as follows:

Possible Values:	XXX.XXX.XXX.XXX where XXX is 000 to 255
Default:	000.000.000.000

Procedure

Follow these steps to set up a DNS IP Address.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Configuration screen appears. 
2.	Press the Next Item softkey until DNS IP Address appears and press the **Change Value** softkey. The Set DNS IP Address screen appears. 

Step	Action
3.	Use the softkey as follows: • ← → — moves the highlight left and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the IP address. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the address.

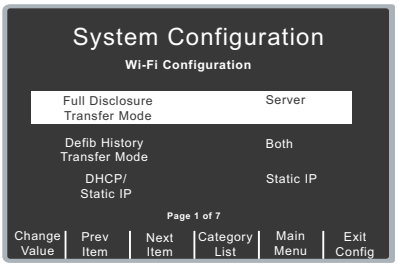
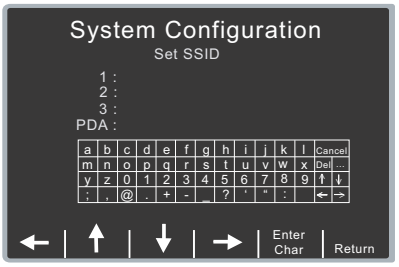
SSID Names (up to 4 entries)

This setting allows you to specify the specific SSID string. You can specify up to 4 entries with a 32 character limit.

Note: The fourth entry is reserved for PDA usage and is marked “PDA”.

Procedure

Follow these steps to set up an SSID name(s).

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Configuration screen appears. 
2.	Press the Next Item softkey until SSID NAMES appears and press the **Change Value** softkey. The Set SSID screen appears. 

Step	Action
3.	In the character selection table: • ↑↓ moves the cursor to the next line. • . . . — changes the table to a different set of characters, including uppercase letters. Use the softkeys as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the SSIDs. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the ID(s).

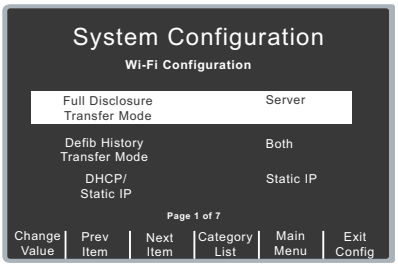
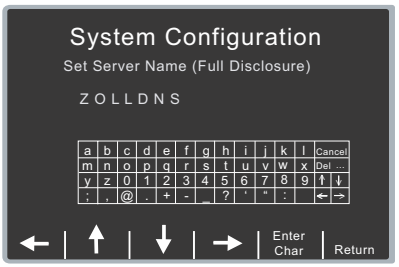
Server Name (Full Disclosure)

This setting allows you to specify the server name string to use if the following conditions are met:

- Use DNS setting is set to Yes
- Full Disclosure Transfer Mode is not set to Server

Procedure

Follow these steps to set up a server name.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Configuration screen appears. 
2.	Press the Next Item softkey until Server Name (Full Disclosure) appears and press the **Change Value** softkey. The Set Server Name (Full Disclosure) screen appears. 

Step	Action
3.	In the character selection table: • ↑↓ moves the cursor to the next line. • . . . — changes the table to a different set of characters, including uppercase letters. Use the softkeys as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted characters of the server name. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the server name.

Server IP (Full Disclosure)

This setting allows you to specify the server IP address to use if the following conditions are met:

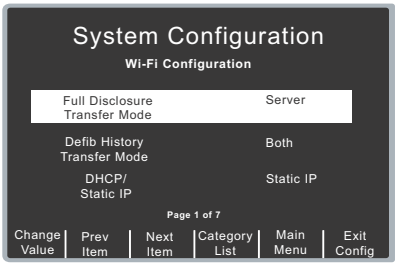
- Use DNS is set to No
- Full Disclosure Transfer Mode is set to Server

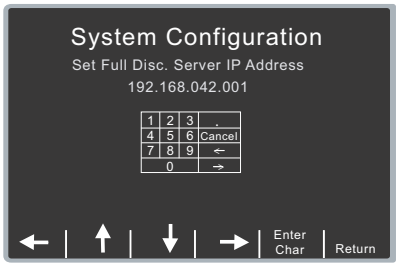
Values are as follows:

Possible Values:	XXX.XXX.XXX.XXX where XXX is 0 to 255
Default:	000.000.000.000

Procedure

Follow these steps to set up a server IP address.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Settings screen appears. 

Step	Action
2.	Press the Next Item softkey until Server IP (Full Disclosure) appears and press the **Change Value** softkey. The Set Full Disc. Server IP Address screen appears. 
3.	Use the softkey as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the server IP address. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the IP address.

Server Port (Full Disclosure)

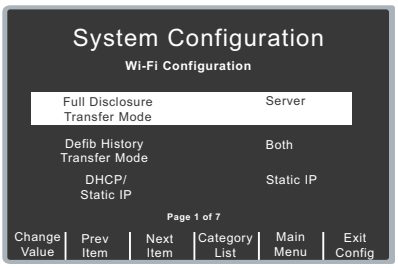
This setting allows you to specify the TCP port used to connect with the server if the Full Disclosure Transfer Mode setting is set to Server.

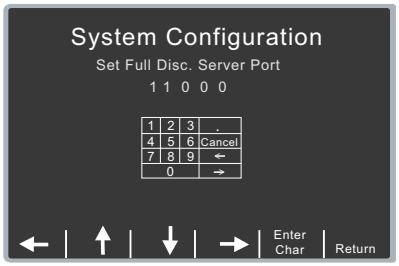
Values are as follows:

Default:	11000

Procedure

Follow these steps to set up a server port name.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Settings screen appears. 

Step	Action
2.	Press the Next Item softkey until Set Server Port (Full Disclosure) appears and press the **Change Value** softkey. The Set Full Disc. Server Port screen appears. 
3.	Use the softkey as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the port. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the server port name.

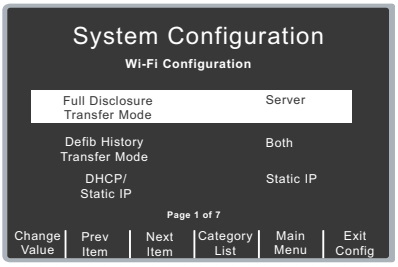
Server Name (Defib History)

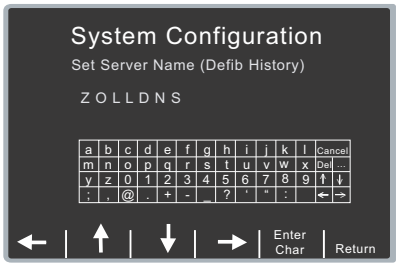
This setting allows you to specify the server name string to use if the following conditions are met:

- Use DNS is set to Yes
- Defib History Transfer Mode is not set to None

Procedure

Follow these steps to set up a server name.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Settings screen appears. 

Step	Action
2.	Press the Next Item softkey until Server Name (Defib History) appears and press the **Change Value** softkey. The Set Server Name (Defib History) screen appears. 
3.	In the character selection table: • ↑↓ moves the cursor to the next line. • **. . .** — changes the table to a different set of characters, including uppercase letters. Use the softkeys as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted characters of the server name. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the server name.

Server IP (Defib History)

This setting allows you to specify the server IP address to use if the following conditions are met:

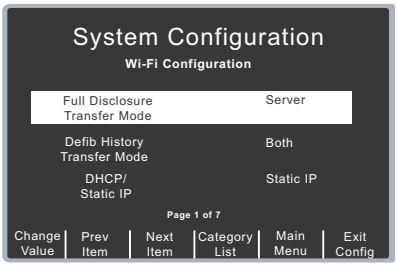
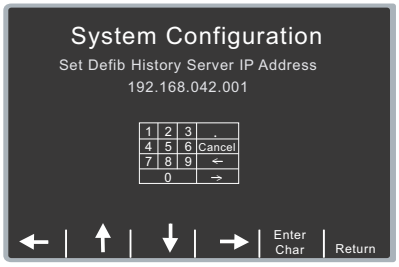
- Use DNS is set to No
- Defib History Transfer Mode is not set to None

Values are as follows:

Possible Values:	XXX.XXX.XXX.XXX where XXX is 0 to 255
Default:	000.000.000.000

Procedure

Follow these steps to set up an server IP address.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Settings screen appears. 
2.	Press the Next Item softkey until Server IP (Defib History) appears and press the **Change Value** softkey. The Set Defib History Server IP Address screen appears. 
3.	Use the softkey as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the server IP. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the server IP.

Server Port (Defib History)

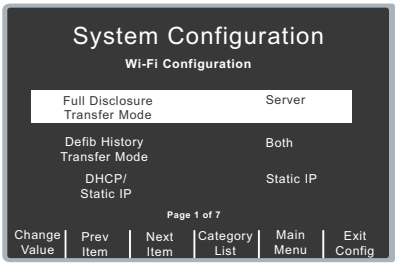
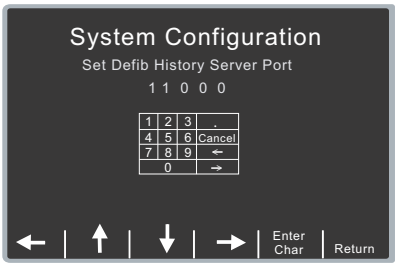
This setting allows you to specify the TCP port used to connect with the server if Defib History Transfer Mode is not set to None.

Values are as follows:

Default:	11000

Procedure

Follow these steps to set up a server port.

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Settings screen appears. 
2.	Press the Next Item softkey until Set Server Port (Defib History) appears and press the **Change Value** softkey. The Set Defib History Server Port screen appears. 
3.	Use the softkey as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted character for each digit of the server port. • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the server port.

Security Level

This setting allows you to specify the level of security (number of bits) for WEP encryption.

Values are as follows:

Possible Values:	None, 64-bit WEP, 128-bit WEP
Default:	None

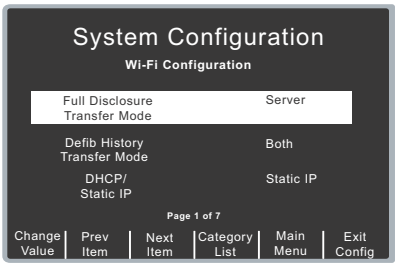
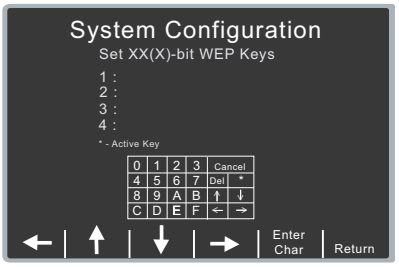
WEP Keys (up to 4 entries)

This setting allows you to specify the keys for WEP encryption. You can specify up to 4 entries; at least 1 entry is required if the Security Level setting is set to either 64-bit WEP or 128-bit WEP. If the Security Level setting is 64-bit WEP, you need to enter a 5 byte hexadecimal number (two characters in each byte); if the Security Level setting is 128-bit WEP, you need to enter a 13 byte hexadecimal number (two characters in each byte).

Note: If you specify a WEP key, you must make a key an active key.

Procedure

Follow these steps to set up a WEP key(s).

Step	Action
1.	From the Select Configuration Categories screen, select Wi-Fi, then press the **Enter** softkey. The Wi-Fi Settings screen appears. 
2.	Press the Next Item softkey until WEP Keys (up to 4 entries) appears and press the **Change Value** softkey. The Set XX(W)-bit WEP Keys screen appears. 

Step	Action
3.	In the character selection table: • ↑↓ moves the cursor to the next line. • . . . — changes the table to a different set of characters, including uppercase letters. Use the softkeys as follows: • ←↑↓→ — moves the highlight up, down, left, and right through the character selection table. • **Enter Char** — enters the highlighted characters of the WEP keys. **Note:** To specify a key as an active key, insert an asterisk (*) in any location within the key. (The asterisk appears to the left of the key.) • **Return** — returns you to the Wi-Fi Configuration screen. Press the **Return** softkey when you are finished entering the keys.

Infrastructure Mode and Ad Hoc Mode Options

Transmit Rate

This setting allows you to specify the data transmission rate. You can set this value or R Series can negotiate with other Wi-Fi devices.

Values are as follows:

Possible Values:	1, 2, 5.5, 11 mbps, Automatic
Default:	Automatic

Channel Number

This setting allows you to specify the Wi-Fi channel to use. You can set this value or use any available channel (Automatic).

Note: The channel values that are available are based on your Wi-Fi domain manufacturing option (US, EU, or OTHER). Any manufacturing option can specify Automatic.

Values are as follows:

Possible Values:	Automatic, US (1 through 11 inclusive for each digit), EU (1 through 13 inclusive for each digit), OTHER (1 through 14 inclusive for each digit)
Default:	Automatic